

Testimony before the Senate Energy & Natural Resources Committee

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Good morning, Chairman Bingaman, Senators, ladies and gentlemen. Thank you very much for hosting me here today. It is an honor and privilege to be offering my thoughts on these important topics before this committee.

I join you in my role as analyst with Bloomberg New Energy Finance, a division of Bloomberg focused on the clean energy sector. Our group provides accurate and actionable data and insight on investment, technology, and policy trends in clean energy. My remarks today represent my views alone and not the corporate positions of either Bloomberg LP or Bloomberg New Energy Finance. In addition, they do not represent investment advice and should not be construed as such.

The subject of today's hearing is China, clean energy and the trade relationship between the United States and China in this area. I grew up in Maryland and have worked in China and Hong Kong over the past six years analyzing the growth of China's clean energy industry. I offer my thoughts on its current status, how it has developed so rapidly and what we can expect in the future. I will leave to my fellow panelists today to discuss more specifically the relevant trade and cooperation issues.

There is no question that China is now a clean energy giant - its industry has grown rapidly from almost nothing in less than a decade. The country now manufactures half the world's wind turbines and solar PV modules. Four of the 10 largest wind turbine manufacturers and eight of the top ten solar manufacturers in the world are Chinese.

The country overtook the United States as the world's largest wind market in 2010 and installed more than 10,000 wind turbines in 2011. That represents almost ten times the capacity of the Hoover Dam.

In 2009 and 2010, China was the world leader in attracting new capital for clean energy. In 2011, a total of \$47bn went into the country's wind, solar, and other clean energy sectors, though China actually finished second to the US last year in total clean energy investment for reasons I'll explain in just a moment.

What has driven this massive growth? First, the Chinese economy is expanding at about 8% per year with electricity demand growth to match. Its utilities and power generators have to invest heavily in new capacity to keep pace. Second, over 70% of China's electricity comes from coal. In the view of the Chinese government, this over reliance has become expensive, environmentally damaging and bad for energy security.

The need to diversify into something cleaner and less vulnerable to fuel price shock is attractive and important.

In 2005, the Chinese government drafted its first Renewable Energy Law which set targets for non-large hydro renewable energy and mandated that its utilities procure a certain portion of electricity from clean sources. This was followed by other supportive measures including feed-in tariffs, which set fixed high prices for power sold from wind or biomass projects, and laws that require grid companies to prioritize dispatch of renewables.

A vision for renewables was outlined at the national level and China's state-owned utilities and industry embraced these goals. Local governments followed, offering land and tax incentives to clean energy companies to set up shop in their home provinces. State-owned banks lent generously to power companies to build their wind farms and solar parks.

A domestic clean energy manufacturing industry was built alongside the generation capacity. Chinese state-owned corporations, many with previous heavy manufacturing or construction experience began buying technology licenses, forming joint ventures and hiring foreign engineers to design their wind turbines. Private entrepreneurs, some backed by venture capital and private equity money from abroad, began building solar manufacturing facilities. The ultimate result: a manufacturing boom and the creation of leading clean energy companies.

It should be noted that a number of European and American clean tech companies have also benefited from this boom. Advanced components of wind turbines were designed and supplied by European firms, and capital equipment used to manufacture solar cells and modules often comes from American companies.

However, China's clean energy boom is not without its problems. The rapid growth of the industry has created a clean energy bubble - there are far too many wind and solar manufacturing companies and many now face intense competitive pressure and possible bankruptcy. One quarter of China's wind farms are not connected to the power grid; they sit idle in remote regions with poor infrastructure and very little electricity demand.

Today China's clean energy industry is still growing, but this growth has moderated significantly and a more mature industry will eventually emerge. The government is trying to cool investment in this sector and reduce the number of new wind farms and solar parks being built in the country each year to a more sustainable level. The focus is more on quality than quantity.

This change, coupled with major US government support in the form of stimulus programs, allowed the US to regain its leadership position in clean energy investment in 2011. That said, we regard it as unlikely that the US will top the table again in 2012 as policy uncertainty appears to be depressing investment, particularly in the wind sector.

Finally, I would like to address the question of what's next for Chinese clean energy companies. As the industry cools at home, many are now seeking opportunities abroad. China has a surplus of savings and a strong need for further investment to drive its economic growth, including more investment overseas. Its government has encouraged the clean energy industry to do this.

Chinese solar companies have exported their equipment to Germany, the US, and elsewhere for years. But Chinese wind turbine manufacturers, utilities and other clean tech investors have remained largely confined to the domestic market. In coming months, we anticipate Chinese power companies and banks developing and financing clean energy projects abroad, not only the US, but in Europe and particularly in emerging markets such as Latin America.

At the same time, American and European clean energy companies will continue to sell their products and technology to China and also partner with Chinese companies as they go overseas. The trade flow in clean technology between the United States and China will only increase in the future - and it will be a two way street.

However, unlike the breakneck pace of Chinese domestic clean energy investment, overseas ventures have so far been slow and cautious - a trickle and not a flood.

Thank you for your time and attention, I welcome your questions and comments.